

We claim:

1. A method of determining a plurality of cost/utility estimates for evaluating the cost effectiveness of providing growth hormone replacement therapy to an individual having growth hormone deficiency, the method comprising the steps of:

5 a) identifying one or more morbidities associated with growth hormone deficiency;

b) predicting the development of the one or more morbidities in an individual being treated with growth hormone replacement therapy over a simulated life cycle;

10 c) estimating a cost associated with providing growth hormone replacement therapy and with treating the predicted developed one or more morbidities in the individual being treated with growth hormone replacement therapy over the simulated life cycle;

d) estimating a utility associated with being treated with growth hormone replacement therapy;

15 e) predicting the development of the one or more morbidities in an individual not being treated with growth hormone replacement therapy over a simulated life cycle;

20 f) estimating a cost associated with treating the predicted developed one or more morbidities in the individual not being treated with growth hormone replacement therapy over the simulated life cycle; and

g) estimating a utility with not being treated with growth hormone replacement therapy.

2. The method of claim 1, wherein the step of predicting the development of one or more morbidities includes setting a plurality of baseline values for the individual that identify a corresponding plurality of predetermined risk factors about the individual.

3. The method of claim 2, wherein the baseline values comprise systolic blood pressure, diabetes, total cholesterol, high density lipoproteins cholesterol, bone mineral density, age, sex, smoking preference, whether the individual is currently receiving growth hormone treatment therapy or has ever received growth hormone treatment therapy, or combinations thereof.

4. The method of claim 1, wherein the utility is derived from the individual's answers to a pre-determined set of questions.

5. The method of claim 1, wherein the step of predicting the development of one or more morbidities includes predicting a risk of death of the individual.

6. The method of claim 5, wherein the risk of death is based on natural death tables, coronary heart disease tables, or both.

7. The method of claim 2, wherein the step of predicting the development of one or more morbidities includes applying the risk factors to predict development of the one or more morbidities during the simulated life cycle.

8. The method of claim 1, wherein the morbidities comprise myocardial infarction, coronary heart disease, stroke, hip fracture, neck fracture, death or combinations thereof.

9. The method of claim 1, wherein the step of predicting the development of one or more morbidities includes applying a risk equation, probability table or combination thereof to determine a probability of developing myocardial infarction, coronary heart disease, stroke, hip fracture and neck fracture.

10. The method of claim 9, wherein the step of predicting the development of one or more morbidities includes applying a Framingham Risk Equation to determine a probability of developing myocardial infarction or coronary heart disease.

11. The method of claim 9, wherein the step of predicting the development of one or more morbidities includes applying a Rotterdam fracture risk equation to determine a probability of developing a hip fracture.

12. The method of claim 1, wherein cost is estimated from the cost of hospital visits, outpatient clinics, physician visits, growth hormone replacement therapy, or combinations thereof.

13. The method of claim 1, wherein the life cycle of the individual is simulated for a period of 20 years.

14. The method of claim 1, further comprising the step of outputting the estimated cost and estimated utility associated with the individual being treated with growth hormone replacement therapy and the estimated cost and estimated utility

5 associated with the individual not being treated with growth hormone replacement therapy.

15. The method of claim 14, further comprising the step of comparing the output to evaluate the cost-effectiveness of providing the treatment to the individual having growth hormone deficiency.

10 16. A computer-readable medium containing instructions for outputting a plurality of cost/utility estimates for evaluating the cost effectiveness of providing growth hormone replacement therapy to an individual having growth hormone deficiency; the instructions being operable to:

15 a) predict the development of one or more predetermined morbidities in an individual being treated with growth hormone replacement therapy over a simulated life cycle;

b) estimate a cost associated with providing growth hormone replacement therapy and with treating the predicted developed one or more morbidities in the individual being treated with growth hormone replacement therapy over the simulated life cycle;

20 c) estimate a utility associated with being treated with growth hormone replacement therapy;

d) predict the development of the one or more predetermined morbidities in an individual not being treated with growth hormone replacement therapy over a simulated life cycle;

- 25                    e)        estimate a cost associated with treating the predicted developed  
one or more morbidities in the individual not being treated with growth  
hormone replacement therapy over the simulated life cycle;
- f)        estimate a utility associated with not being treated with growth  
hormone replacement therapy; and
- 30                    g)        output the estimated cost and estimated utility associated with  
the individual being treated with growth hormone replacement therapy and the  
estimated cost and estimated utility associated with the individual not being  
treated with growth hormone replacement therapy.

17.    The computer readable medium of claim 16, further comprising  
instructions configured to provide an output that predicts the number of individuals  
with growth hormone deficiency that develop myocardial infarction, the number of  
individuals with growth hormone deficiency that develop coronary heart disease, the  
5    number of individuals with growth hormone deficiency that develop stroke, the  
number of individuals with growth hormone deficiency that develop hip fracture, the  
number of individuals with growth hormone deficiency that develop neck fractures,  
the number of individuals with growth hormone deficiency that are alive and the  
number of individuals with growth hormone deficiency that are receiving treatment,  
10    or any combination thereof.

18.    A system for outputting a plurality of cost/utility estimates for  
determining the cost effectiveness of providing growth hormone replacement therapy  
to an individual having growth hormone deficiency, the system comprising:

a database comprising:

5           data identifying one or more morbidities associated with growth hormone deficiency;

data identifying a probability of developing the one or more morbidities;

data identifying a cost associated with treating the one or more morbidities;

10           data identifying a cost associated with providing growth hormone treatment therapy;

data identifying a utility associated with receiving growth hormone treatment therapy; and

data identifying a utility associated with not receiving growth hormone treatment therapy; and

15           a computer system comprising executable instructions in communication with the database and configured to predict the development of one or more morbidities over a simulated life cycle, and further comprising executable instructions configured to output a plurality of cost/utility estimates based on the data.

19.    The system of claim 18, wherein the database further comprises a plurality of baseline values for the individual that identify a corresponding plurality of predetermined risk factors about the individual.

20.    The system of claim 18, wherein data identifying the probability of developing the one or more morbidities is derived using a risk equation, probability table or combination thereof.